

What is claimed is:

1 A xDSL (Very high rate Digital Subscriber Line) modem having a
DFE (Decision Feedback Equalizer), comprising a null compensator for finding a null
5 frequency generated on a transfer function of a receiving signal before the DFE by
predicting and tracing the null frequency to enlarge a signal component of the null
frequency.

2. The xDSL according to claim 1, wherein the null compensator
10 comprises:

a null compensating filter for enlarging the signal component corresponding to
the null frequency on the transfer function of the receiving signal; and

a null tracer for tracing the null frequency using minimum point of a average
power or a output energy of the null compensating filter.

15

3. The xDSL according to claim 2, wherein the null compensating filter
has a transfer function with an inverse characteristic to a notch filter having a transfer
function characteristic with a notch type.

20 4. The xDSL according to claim 2, wherein the null tracer predicts and
traces the null frequency with a RPE (Recursive Prediction Error) algorithm and a
Gauss-Newton method.